ing his tenth edition of the System, it is most fitting that the Polar Hare of Southern Scandinavia should be made the type of the *timidus* group, the Swedish Hares being those which would most naturally embody and form the source of his original diagnosis.

The writer is now preparing a more compendious revision, with illustrations, of the New World representatives of the *Lepus timidus* group, which will probably appear in a future number of the Proceedings of the Academy of Natural Sciences of Philadelphia.

—Samuel N. Rhoads.

ENTOMOLOGY.[1]

On Certain Geophilidæ Described by Meinert.—The Chilopoda of the Museum of Comparative Zoology were studied by Dr. Meinert, and the results published in a paper entitled "*Myriapoda Musei Cantabrigensis.*"[2] Many new species were described, but as no figures were given, identification is not in all cases easy, although the descriptions are of considerable length. With reference to the Geophilidæ, at least, there are certain misleading statements and unfortunate omissions. During a recent visit to Cambridge I had the pleasure of a very brief examination of the types of several of Dr. Meinert's species, and some long-standing curiosity was satisfied.

Geophilus georgianus Meinert.

According to Dr. Meinert this species has but a single pleural pore. For some years past I have had specimens from the South which agreed well with the description of this species, but had two pores. As this character is a very constant one, my determination was not made with confidence. The type of *georgianus* has, however, two large pores on each side concealed under the last ventral plate, so that the anomaly is disposed of. The pores are similar in structure and location to those of *G. rubens.*

Geophilus cephalicus Wood.

The specimens described by Meinert, and previously by Wood as *cephalicus* belong to *G. rubens* Say. I have examined the type in the British Museum. It is the most common geophilid in the northeastern states.

Geophilus urbicus Meinert.

No ventral pores could be made out. The sterna are uneven and the whole animal is very hairy. The form of the body, the armature

[1] Edited by Clarence M. Weed, New Hampshire College, Durham, N. H.

[2] Proc. Am. Phil. Soc. XXI, pp. 161–233 (1885).

of the prehensorial legs and other strong similarities leave little doubt that this is a member of the genus Escaryus, as was conjectured when that genus was erected.[3] The anal legs were also strongly curved under as has been the case with all the specimens of Escaryus yet observed. That the differences enumerated between *E. phyllophilus* and *E. urbicus* can be maintained, is doubtful, for the Cambridge specimen is in rather poor condition, so that some of the characters ascribed by Dr. Meinert may easily prove to have been accidental.

Scolioplanes robustus Meinert.

The locality of this species was not known. I have collected what is evidently the same in central New York and southern Pennsylvania, and am unable to separate it from Sager's *Strigamia fulva*, the probable type of which I have seen in the Museum of the Academy of Natural Sciences at Philadelphia. The only difference between it and *bothriopus* and *robustus* seems to be that of size. The large specimens always show evidences of good living. The creatures are also constructed so as to be capable of considerable distention, besides being variable in size and number of legs, even in the same localities.

Scolioplanes parviceps Meinert.

The label in this bottle, probably in Meinert's handwriting is "*Scolioplanes parviceps* n. sp." The bottle also contains a label marked "*Strigamia bidens* Wood, N. A. loc.?" It is evidently to this label that Dr. Meinert refers when he says, (p. 226). "A specimen, which was said to be a type of Dr. Wood, was labeled '*Strigamia bidens* Wood.'" To thus rename a type specimen seems a remarkable proceeding, especially when the new name proposed has already been used in the same genus. Yet this is probably what Dr. Meinert proposed to do, for Mr. Henshaw kindly showed me a list of the collection, carefully made out in Dr. Meinert's handwriting, and in this the species is again given as new. That it did not so appear when the paper was printed, may have been the work of some American editor who knew of Wood's species and naturally supposed that the same was intended by Meinert.

Wood's *parviceps* is a Californian species, while *bidens* is found in the East. I have collected it in the vicinity of Washington. I had a specimen of *parviceps* at Cambridge with me to compare, but the difference was evident. There was no other specimen of *bidens* at hand, but the size, form of the body and other characters agree well with the eastern species.

[3] Proc. U. S. Nat. Museum XIII, p. 394 (1890).

Scolioplanes longicornis Meinert.

This species was looked upon by its author as the probable type of a new genus. The prehensorial claws are very long and slender, and the basal tooth very small. That it represents a new genus is well-nigh certain, but it would be idle to name it until drawings can be made.

Scolioplanes exul Meinert.

This is a large specimen with a strong general resemblance to large males of *fulvus* (*robustus*). The last pleuræ are without pores except close under the edge of the last ventral plate, where there is a large porose cavity. Anal legs with the claw minute, almost rudimentary, in this offering a strong contrast to the other American species known to me. The anal legs are also very robust, much stouter than a Californian specimen of *parviceps*.

Mecistocephalus breviceps Meinert.

The type specimen is minus the cephalic lamina and antennæ. There is another specimen labeled *breviceps*, but with no locality given. If the type was really collected at Nantucket the species must be very rare or local, for it seems not to have been found elsewhere.

Mecistocephalus heros Meinert.

It has been conjectured by Mr. Pocock that this species should be added to the long list of synonyms of *punctifrons*. I have never examined carefully authentic specimens of *punctifrons*, but the form of the prehensorial legs in the Cambridge specimen, especially the armature of the coxa is different from that of *Haase's* diagram of *punctifrons*. There is no distinct tooth, only a rounded prominence at the distal corner.

Himantarium indicum Meinert.

This specimen is in poor condition and has evidently been allowed to dry at some time in its history. The antennæ are distinctly attenuate. The ventral pores are in a posterior, transverse, subreniform area three or four times as broad as long. This area is scarcely depressed, but is quite definite. Pleural pores are not visible.

Himantarium tæniopse (Wood).

Ventral pores in a small, round, impressed, posterior area. No pleural pores visible, but they may be concealed under the very broad last ventral plate, as is the case in the following species.

Himantarium laticeps (Wood).

The ventral plates appear to be unusually long. The pores are located about two-thirds back, in broad, short, transverse areas. Three

large pleural pores, subconcealed. There seemed to be no specimen of *Himantarium insigne* Meinert in the collection.—O. F. Cook.

Life-history of Scale Insects.—In an excellent account of the Scale Insects affecting deciduous fruit trees Mr. L. O. Howard discusses[4] the life-history of the Coccidæ as follows: In respect to life history, the family Coccidæ, which includes all of the so-called scale insects, is very abnormal. The eggs are laid by the adult female either immediately beneath her own body or at its posterior extremity. Certain species do not lay eggs, but give birth to living young, as do the plant lice. This abnormal habit is not characteristic of any particular group of forms, but is found with individual species in one or more genera. The young on hatching from the eggs are active, six-legged, mite-like creatures which crawl rapidly away from the body of the mother, wander out upon the new and tender growth of the tree, and there settle, pushing their beaks through the outer tissue of the leaf or twig and feeding upon the sap. Even in this early stage the male insect can be distinguished from the female by certain differences in structure. As a general thing, the female casts its skin from three to five times before reaching the adult condition and beginning to lay eggs or give birth to young. With each successive molt the insect increases in size and becomes usually more convex in form. Its legs and antennæ become proportionately reduced, and its eyes become smaller and are finally lost. As a general thing, it is incapable of moving itself from the spot where it has fixed itself after the second molt, although certain species crawl throughout life. The adult female insect, then, is a motionless, degraded, wingless, and, for all practical purposes, legless and eyeless creature. In the armored scales she is absolutely legless and eyeless. The mouth parts, through which she derives nourishment, remain functional, and have enlarged from molt to molt. Her body becomes swollen with eggs or young, and as soon as these are laid or born she dies.

The life of the male differs radically from that of the female. Up to the second molt the life history is practically parallel in both sexes, but after this period the male larva transforms to a pupa, in which the organs of the perfectly developed, fledged insect become apparent. This change may be undergone within a cocoon or under a male scale. The adult male, which emerges from the pupa at about the time when the female becomes full grown, is an active and rather highly organized creature, with two broad, functional wings and long, vibrating antennæ.

[4] Yearbook U. S. Dept. Agr., 1894.

The legs are also long and stout. The hind wings are absent, and are replaced by rather long tubercles, to the end of each of which is articulated a strong bristle, hooked at the tip, the tip fitting into a pocket on the hind border of the wings. The eyes of the male insect are very large and strongly faceted. The mouth parts are entirely absent, their place being taken by supplementary eye spots. The function of the male insect is simply to fertilize the female, and it then dies. The number of generations annually among bark lice differs so widely with different forms that no general statement can be made.

EMBRYOLOGY.[1]

The development of Isopods.—Last Winter when M. Louis Roule published a long paper in French on the development of an Isopod, *Porcellio scaber* Leach, it seemed advisable to present a rather full abstract in this magazine, for the benefit of those readers who would not see the original or who did not read French. That abstract appeared in February and contained, besides the descriptive account of the embryology, some interesting conclusions based on these results.

In the May number of the Journal of Morphology Dr. J. Playfair McMurrich publishes a long paper, illustrated with excellent figures, which is not at all reconcilable with M. Roule's views. It must be remembered, in comparing the two papers, that M. Roule studied a single species of Isopod, that he gives rather diagrammatic figures, and that his description of the segmentation, on which apparently the whole fabric rests, is of a very general nature.

Dr. McMurrich took up the work in 1890, hoping to make out the cytogeny of a Crustacean as Whitman had done for Clepsine, and as E. B. Wilson has later done for Nereis and other forms. This author's results rest then on a thorough study of the segmentation, and as he did not confine his attention to one form, but observed and figured the segmentation and early differentation in a number of Isopods, the paper is of especial interest.

The forms studied were *Jæra marina* Möbius (1873); *Asellus communis* Say; *Porcellio scaber; Armadillidium vulgare;* with some observations on *Cymothoa* and *Ligia.*

The segmentation is centrolecithal. The nucleus of the unsegmented ovum lies in a central mass of protoplasm surrounded by yolk, and

[1] Edited by E. A. Andrews, Baltimore, Md., to whom abstracts, reviews and preliminary notes may be sent.